C.A.F.E. | Carbon, Aqua, Fire & Eco-resilience Decision Support System

C.A.F.E. determines the optimum silvicultural activities to manage multiple products, goods and services such as biomass production, C2 sequestration, fire risk, water provisioning , climatic resilience or biodiversity, for a selected solution.

This tool determines the optimum silvicultural activities to manage multiple products, goods and services such as biomass production, CO2 sequestration, fire risk, water provisioning, climatic resilience or biodiversity, which are simultaneously quantified in time and space for a selected solution. Main advantages include:

- Changing the mono-objective approach in order to include a group of ecosystem goods and services.
- Improving the economic performance of low productive areas by quantifying and valorising other resources that could be remunerated attending to the environmental value.
- Holistic optimization of multiple goods and services out of forest management.
- Adequacy to the specific characteristics of each site.
- Multi-scalar results (plot, forest working unit, catchment, etc.).

C.A.F.E. is a tool that combines eco-hydrologic dynamic simulation with many-criteria optimization, where the user can carry out forest management according to more than one product at the same time, and choose the relevance of each objective/product. This software is capable of working under different climatic regions thanks to the previous calibration of the eco-hydrological simulation. Furthermore, it is possible to modify the spatial scale moving from plot to catchment, integrating a strong biophysical unit. In the same way, simulating different climatic scenarios is also possible. The result is a group of possible solutions among which forest manager can decide and apply.

PODROBNOSTI

PôVOD DREVA

Les

DRUH DREVA

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UVAžOVANý DRUH DREVA

All wood produced in the forest system (trunk, branches, roots).

VPLYV NA žIVOTNé PROSTREDIE A BIODIVERZITU

- Demonstration and replication of a successful, innovative forest management scheme at a watershed scale. At the beginning it will be applied at sub catchment level in Spain (415 hectares), then at catchment level in Germany, Portugal and Spain (7,824 hectares) and finally it will be further expanded up to 350,000 hectares within five years from the project completion.
- Reinforcement of mechanisms to develop climate change adaptation measures in rural areas and to ensure its socioeconomic sustainability;
- Increased water reserves of 45-200 l/m²/year and increased water availability downstream, leading to a reduction in energy extraction costs to 5 W/hm;
- Increased sustainable biomass production for bioenergy uses, between 10 and 15 t/ha year, including both forest and

MOBILZAčNý POTENCIáL

Very positive

POTENCIáL UDRžATEľNOSTI - HODNOTA

Veľmi pozitívne

UľAHčENIE IMPLMENTáCIE

It is not easy to use, but we are developing user guides to make it easier.

UľAHčENIE IMPLMENTáCIE - HODNOTENIE

Stredná

agricultural residues traditionally burned and usually the cause of wildfires.

- Reduced fire hazards by 30%, protecting rural populations currently residing in risk areas
- Increased resilience of 25% of forest areas to withstand droughts, pests and disease outbreak.

DOPAD NA PRíJMY

If the management objective is to maximise productivity, revenues will also be maximised.

KľúčOVé PREPOKLADY

Input data for the chosen mechanistic model.

Decision variables.

Constraints to be applied.

POTENCIáL VYUžITIA

High, as it is based on mechanistic modelling it can be applied in any climatic region. Furthermore, by including a wide range of ecosystem services, it can meet the needs of different types of forest management.

TYP PODUJATIA, NA KTOROM BOL TENTO BPI PREZENTOVANý

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ROZBOčOVAč

Juhozápadné centrum

DOPAD NA ZAMESTNANOSť

The management that is proposed always generates jobs to carry it out.

EKONOMICKý VPLYV

The tool is free, so the economic impact is positive as you provide a very powerful management tool at 0 cost.

NáKLADY NA IMPLEMENTáCIU (EURO - €)

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POTREBA šPECIFICKýCH ZNALOSTí

Knowledge of Geographic Information Systems is necessary to be able to prepare the input data for the tool.

VIAC INFORMáCIí

RIEšENá VýZVA

1. Zlepšenie odolnosti lesov a adaptácie na zmenu klímy

DOMAIN

Lesné hospodárstvo/hospodárska úprava lesa, pestovanie lesa, ekosystémové služby, odolonosť Disturbancie/kalamity, riziká, odpoveď na katastrofu

TYP RIEšENIA

Modelovanie, simulácia, optimalizácia

KľúčOVé SLOVá

Resilience/Networking/Decision support system(DSS)/

DIGITALNE RIEšENIE

áno

INOVáCIE

Áno

KRAJINA PôVODU

Belgicko

ROZSAH APLIKáCIE

Continental

ZAČIATOK A KONIEC ROKA

2019 - 2023

KONTAKTNé úDAJE

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https://www.iiama.upv.es/iiama/en/technology-transfer/software/cafe-i.html

REPORTéR

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REFERENCES AND RESOURCES

HLAVNá WEBSTRáNKA

http://www.resilientforest.eu/wp-content/uploads/2020/05/DSS-TOOL-.pdf

PROJEKTOVá WEBSTRáNKA

https://www.resilientforest.eu/

REFERENCIA PROJEKTU

The project LIFE RESILIENT FORESTS – Coupling water, fire and climate resilience with biomass production from forestry to adapt watersheds to climate

ZDROJE

change is co-funded by the LIFE Programme of the European Union under contract number LIFE 17 CCA/ES/000063

LOGO NAJLPEŠEJ PRAXE

LOGO HLAVNEJ ORGANIZáCIE

PROJEKT, V RáMCI KTORéHO BOL TENTO INFORMAčNý PREHľAD VYTVORENý

Rosewood 4.0

DáTUM ODOSLANIA

8 sep 2021

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 862681

Link to Rosewood 4.0

A TOOL FROM ROSEWOOD 4.0, DESIGNED AND DEVELOPED BY